

New Safety Rules For Protection Of Employees Of Mines

In response to the appeal printed below from a mother, the Review on this page grants the request made and believes that in so doing it is following a most excellent and well intended suggestion. The letter follows:

Editor the Review:—I do not believe it is possible for the managers of the mining companies and the men employed to know how deeply the women are interested in the safety first movement. Many of us may not say so, but nevertheless I know we all feel thankful in our hearts for the movement and the interest it is receiving. We are interested vitally and with all our hearts because of our sons, brothers, husbands and sweethearts working underground—and we are also interested just because of humanity's sake.

I am writing this more, however, with the idea of suggesting to you that you print in the Review the rules which the safety committee of the Copper Queen mines recently adopted and which are to be printed and distributed among all employees. I think this has been a wise movement and do hope the thought and care which doubtless has been given to the making of these rules will find an echo in the prompting of strict observance of the things they tell of for the safety of those working for the mining companies.

But the reason in particular that I am suggesting that you print these rules is this—

—a great many mothers, sisters, wives and sweethearts who would not otherwise see these rules will see and not only SEE, BUT READ AND REMEMBER them if they are printed in the Review and will also see to it that those dear to them are reminded of the salient points. It will be a work of love with many a woman in this district to remember the rules and help her menfolk to remember them. Therefore I am suggesting to you that you print them.

A MOTHER.

FOREWORD

In view of the large number of minor and major accidents which have occurred in and around the mines and works of the Copper Queen Consolidated Mining Company, many of which we believe to be preventable, it has been decided to form a Safety Department of the Company, which will depend for its ultimate success on the hearty co-operation of all officers and men in its employ. Such imperfect statistics as are available show that at the most conservative estimate more than half of the accidents which incapacitate, are caused by conditions that are preventable, and it is this class of accident that the Safety Department will endeavor to eliminate or reduce. It is, of course, obvious that any injury however trivial which is sustained by an employee is a direct monetary loss, not only to him but to the company, and where the accident is so serious as to involve a prolonged period of inactivity, no monetary compensation can be paid, that will reimburse him for the suffering endured and the loss of possible opportunities for advancement. With those conditions in view, and recognizing that we are all mortal, and therefore fallible and liable to error, we ask the assistance and suggestions of all those who are working for the Copper Queen, with the object of discussing and installing safety devices, and preventing such carelessness as endangers the lives or limbs of those who are at work. Much has been done in the past by both the State and by the company to provide for the health and safety of the employees, but there is still much that can be accomplished, and especially through your cooperation and help. Criticisms of methods and machinery that might be considered unwise or unsafe will be welcomed by your Committee, and suggestions as to improvements that will work for safety will be much appreciated. The prevention of accidents and injuries by all possible means is a personal duty which everyone owes not to himself alone, but also to his fellow workmen.

GENERAL RULES

Surface

1. All employees should use the roadways provided for travel. Railway tracks should be avoided. Men should not use thoroughfares where danger signs are displayed.

2. The Change Houses must be kept clean and in the best sanitary condition possible.

3. At all mines men shall be appointed by the Superintendent, who shall have charge of all apparatus in case of a fire. Rules for this shall be posted. Men shall be instructed in the use of fire fighting helmets.

Boiler House

1. Never go into a boiler until you have closed all valves, the fireman in charge is notified and danger signs attached.

Engine House

1. Men should see that all guards or protections are in place before beginning work in dangerous places.

Shop Buildings

1. All machinery must be oiled if possible when not running.

2. When you complete a job, never leave tools or material lying overhead. Tear down all temporary scaffolds when you are through with them. Do not allow boards with nails sticking up, to lie around anywhere.

3. After repairing machinery, always replace safeguards before leaving the job.

4. It is the duty of all officers to know the condition of platforms and railings, and if the same are not in safe condition, they should report the matter at once to their Foreman.

5. Do not pile material so high that it is liable to fall.

6. Use the guards which are provided for safety on the machine, or around the shop.

Hoisting Machinery

1. It shall be the duty of every master mechanic of every mine having a hoisting engine, to appoint and designate one or more men, who shall be able to speak and read the English language readily, to be known as hoisting engineers. At all shafts where men are hoisted or lowered, such hoisting engineers shall not be less than twenty-one years of age, and at shafts where men are not hoisted or lowered they shall not be less than eighteen years of age. It shall be the duty of every master mechanic to appoint as hoisting engineers men who are familiar with the details and workings of a hoisting engine, and to permit no one, other than such duly appointed hoisting engineers, to run such engine or hoisting machinery, except that by and with the consent of the master mechanic, specified apprentices may be taught the operation of the hoisting engine, at such times and under such restrictions, as the master mechanic may determine to be free of risk to life and limb.

2. It shall be the duty of every hoisting engineer to keep a careful watch over his engine, and over all machinery, under his charge.

3. He shall at all times be in immediate charge of his engine, and shall not at any time delegate any of his duties to any other person, except, however, nothing herein contained shall be construed to prevent any hoisting engineer delegating to, or sharing his duties with any other duly appointed

hoisting engineer, or turning over the engine or machinery in his charge to any other such engineer at the end of his shift.

4. He shall familiarize himself with and use the signal code for hoisting and lowering, and a copy of signal code shall be posted in the engine house and at the collar of the shaft and at all stations in the mine.

5. He shall not run his engine unless the same is properly provided with brakes, indicators and distance marks on hoisting ropes, or cables, or drums.

6. It shall be the duty of the hoisting engineer to exclude every person from his engine room, excepting any person or persons whose duties require their presence therein, and visitors authorized by the Superintendent of the mine.

7. The man operating the hoisting machinery shall hold no conversation with any one while his engine is in motion, or while attending to signals.

8. He must run his engine with extreme caution whenever men are being hoisted and lowered.

9. He shall not hoist men out of, or lower men into any mine or shaft, at a speed greater than 800 feet per minute.

10. At all shafts where there are no cage riders, when cage has been run off, the Engineer shall hoist cage so that the bottom deck shall be in the shaft, out of sight and above the top of the station.

11. All hoisting machinery and safety appliances connected therewith, and all ropes and hoisting apparatus shall be inspected, when and as directed by the mine Superintendent, and reports shall be made to him as to any defects found therein.

12. After any stoppage of hoisting for repairs, or for any other purpose exceeding in duration one hour, the official in charge shall have the hoisting engineer run a cage or other conveyance, unloaded, up and down the working portion of the shaft, at least once, and shall not permit the cage or other conveyance to be used until the hoisting machinery and shaft are found to be in safe condition.

13. No hoisting shall be done in any compartment of a shaft while repairs are being made in the said hoisting compartment, excepting such hoisting as may be necessary to make such repairs.

14. He shall familiarize himself with and carry out the requirements of the Company as they concern his duties.

15. The Superintendent shall post a copy of this above rules in a conspicuous place in the engine house, and copies of these rules shall be furnished all engineers and their receipts taken for them.

16. Worn or broken pieces in ropes shall be reported at once to the proper person.

17. All ropes must be inspected once in every twenty-four (24) hours by the hoisting engineer in charge; when two shifts are working, by the engineer on the day shift, and when three shifts are working by the engineer on the afternoon shift.

18. Ropes shall be treated with oil or rope compound only under the direction of the Master Mechanic.

Cages, Skips and Buckets

1. Cage doors must be closed when men are being hoisted or lowered, except when they are handling timber and the doors cannot be closed.

2. All safety catches on cages and skips must be kept well oiled and in good working condition.

3. Cages must be inspected daily by some competent person appointed by the Master Mechanic, and the safety catches shall be tested once each month.

4. At all mines where hoisting is done by cage or skips from two or more levels, a man shall be employed at the discretion of the Safety Committee, whose duty shall be to load and unload the cage or skip, and to give all signals to the hoisting engineer.

5. No person shall ride upon any cage, skip or bucket that is loaded with tools, timber, powder or other material, except for the purpose of assisting in passing such material through a shaft or incline, and then only after a special signal has been given.

6. When tools, timber and other materials are to be lowered or hoisted in a shaft, their ends, if projecting above the top of the bucket, skip or other vehicle, shall be securely fastened to the hoisting rope, or to the upper part of the vehicle.

7. In no case shall a cage, skip or bucket, or other vehicle, be lowered directly to the bottom of the shaft when men are working there, but such cage, skip, or bucket, or other vehicle must be stopped at least fifteen feet above the bottom of such shaft, until the signal to lower further has been given to the hoisting engineer by one of the men at the bottom of the shaft, provided, however, that this rule shall not apply to shafts of less than fifty feet in depth.

8. When cleaning skip pits or other work, where the men are working immediately under skips or buckets, timber shall be placed across the shaft and the skip or bucket rested thereon, while such work is being done, and not removed until the same is completed. Notice shall be given to the hoisting engineer, and the skip only moved upon receiving double signal.

Pockets and Conveyors

1. No person shall be near any car being loaded at a pocket or by conveyors, unless employed there. Warning is given that chunks of ore frequently roll over the sides of conveyors or cars being loaded, and it is an extremely dangerous practice to be around or near the same at such times.

Electrical Equipment

1. Every workman not duly authorized by the Chief Electrician, or his Assistant, is forbidden to work on or tamper with any electrical wires or machinery.

2. It is possible to receive a fatal shock from any electric circuit used about the mines under certain conditions; great care should be exercised by those authorized in handling same.

3. The circuits in use in our plant, in the order of their danger, may be grouped as follows: 2300-volt 3-phase, 230-volt 3-phase, 110-volt 3-phase, 250-volt direct current.

4. With the 2300-volt circuits no work should be done upon them, or any apparatus connected to them, unless you are absolutely certain that the power has been cut off. No one should ever work on poles of this circuit, or any of the apparatus, without special permission of the Chief Electrician or his Assistant. In addition to the foregoing, all linemen and electricians must take the following precautions:

(a) Before doing any work on the line or apparatus connected to same, notify the switchboard attendants in the power house to cut all power off the circuit, giving him your name at the same time.

(b) Wait for advice from the attendant at the power house that the power has been cut off from the circuit.

(c) When the work is completed, notify the switchboard attendants at the power house that your work has been completed, making certain that they clearly understand your name, and which circuit you have repaired; have them repeat your name and the circuit to you, to be sure that they do understand.

(d) When a circuit is ordered cut out by the Chief Electrician or his Assistant, this circuit shall only be ordered closed and put in service by the Chief Electrician or his Assistant.

(e) Upon a circuit being opened in order to allow of repairs, a danger signal must be securely fastened to the switch, giving the name of the workman who is employed on the line. This signal must not be removed until notice is received from the workman.

(f) The insulation on electric wires cannot be depended upon to protect you from shocks.

5. All A. C. power feeders should be handled with great care; the pressure is sufficiently high to be fatal under certain conditions. An experienced man may handle these circuits while they are alive, by using proper precautions, but it is much better to cut off the power when possible.

6. The 250-volt D. C. power circuits, under ordinary conditions are likely to cause death by shock, the same precautions should be observed in handling these circuits as in handling those of higher voltage.

7. Never look at an intense arc without adequate protection, such as heavy blue or black glasses. Intense pain results from exposure of the delicate nerves of the eyes to the intense light of an electric arc. As this pain does not manifest itself until several hours afterward, you should immediately seek the advice of the doctor if you have so exposed your eyes, to avoid suffering.

8. There are many special conditions which make any electrical work dangerous. Even telephone or signal wires may become crossed with high tension wires and become charged with danger. It is not possible to explain in detail all such possible cases, but competent workmen are always "afraid."

9. Avoid working on any live circuit as much as possible.

10. Where the power has been cut off by opening a switch, always place a sign, bearing your name on the switch, stating you are working on that line.

11. When work is completed remove the sign. No one except the man who placed it should ever remove such a sign.

12. Never close a switch without a full knowledge concerning the circuit and why the switch was opened.

13. Never handle electric wires while standing or sitting in a wet place, without extra precautions to obtain insulation from the ground.

14. In handling any circuit known to be alive, use only one hand when possible. It is best to keep the other hand behind the back. The most dangerous shocks are those from hand to hand.

15. So far as possible treat all circuits as though they were live, even though you may believe them to be dead.

16. Be cautious and alert at all times and under all conditions.

17. You are directed to tape the handles of your tools, to prevent short-circuits across them.

18. Linemen should always wear safety belts when working on overhead lines, secured above brace straps or cross-arm to prevent falling in case of shocks or burns.

19. All persons not authorized by the Chief Electrician, or his Assistant, are forbidden to work upon any electrical apparatus. You are warned against touching wires of any kind as it may result in death. Before doing any work where there is danger of coming in contact with electric wires, notify an electrician or other authorized person, who will make the line safe, or give instructions so that work may be done safely.

20. The trolley pole must follow instead of leading the motor, except in places where it is impossible. The motor must go slowly when it is necessary to have the trolley pole ahead.

21. The trolley pole must not be turned while the motor is in motion.

22. There must be a red light on the front end of all trains which are being pushed through the drifts.

23. No one except motormen and electricians are allowed to run a motor. No one except motormen and brakemen are allowed to ride on a motor or car, and all brakemen must ride either on motor or on rear end of the train.

24. No flying switches shall be made. Brakemen must always carry lanterns. Any violation of this rule will be sufficient cause for dismissal.

25. Motormen or men running motor shall report to the Electrical Foreman, Mine Foreman or shift bosses, any defective condition of the electrical equipment, under ground.

26. All metallic covering or armor of cables, and the frame and bed-plates of generators, transformers and motors, and the metallic switches, fuses and circuit breakers shall be sufficiently grounded.

27. Instruction shall be placed at the mine entrance, and in every generating, transforming and motor house for the resuscitation of persons suffering from electric shocks. All employees operating any electrical apparatus shall be required to acquaint themselves with these instructions. Would recommend the rules for resuscitation as adopted by the National Electric Light Association, subject to the approval of the Copper Queen Medical Staff. In cases of unconsciousness, the Palmotor must be immediately sent for.

28. All joints must be electrically efficient, mechanically strong and, where practicable, should be soldered. All joints, except in trolley wires, should be taped, or otherwise suitably insulated to protect them from corrosion.

29. All trolley construction or repairs under ground, must conform to the State Laws of Arizona.

30. Every person appointed to operate any electrical apparatus shall be instructed in his duty by the Chief Electrician, or his Assistant, before taking charge of the apparatus and must follow these instructions.

31. All electrical apparatus and conductors shall be sufficient in size and capacity for the work they may be called upon to do, and so installed operated, maintained and safeguarded as to reduce the danger from accidental shock, or fire, or overheating to the minimum, and shall be of such construction and so operated, that the rise in temperature caused by ordinary working will not injure the insulating material.

Shafts

1. When men are working in shafts suitable covering shall be provided to prevent material falling down the shaft.

2. No hoisting shall be done in any compartment of a shaft while repairs are being made in that compartment, excepting such hoisting as is necessary in order to make such repairs.

3. In sinking a shaft a bell rope shall be provided, which can be operated by a man standing in a bucket at the bottom of the shaft.

4. The timbers in all manways in daily use, shall be cleaned of all loose rock lodged upon them at least once in every twenty-four hours. Manways in daily use shall be kept clear of obstructions.

5. Operating shafts are dangerous places; all men must keep away from them except as imperatively called there by their duties, and shall stay near shafts only so long as such duties require. Where pipes or other telephones are provided, particularly around incline shafts, men must not approach the shaft closer than is necessary to use such telephone, until the skip has arrived at the level.

6. Keep the gate at the shaft closed except when in use.

7. If either of the two systems of signalling is out of order, extra care must be taken and report made at once.

BELL SIGNALS

1. BELL—STOP IMMEDIATELY IF IN MOTION.

2. BELL—HOIST MUCK.

3. BELL—RELEASE CAGE, SKIP OR BUCKET.

4. BELL—LOWER.

5. BELL—HOIST MEN. Note—If bells rung near shafts only so long as such duties require. Where pipes or other telephones are provided, particularly around incline shafts, men must not approach the shaft closer than is necessary to use such telephone, until the skip has arrived at the level.

6. Keep the gate at the shaft closed except when in use.

7. If either of the two systems of signalling is out of order, extra care must be taken and report made at once.

it, he must acknowledge by raising the bucket or cage a few feet, then lowering it again. After accepting this signal, the engineer must be prepared to hoist men away from the blast as soon as the signal is given, and must accept no other signal in meantime.

STATION SIGNALS

1. Bells—DANGER SIGNAL. Followed by station signal, calls cage to that station. This signal takes precedence over all others except an accepted blasting signal.

2. Bells—AIR ON OR OFF.

3. Bells—DANGER SIGNAL. Followed by station signal, calls cage to that station. This signal takes precedence over all others except an accepted blasting signal.

4. Bells—AIR ON OR OFF.

5. Bells—DANGER SIGNAL. Followed by station signal, calls cage to that station. This signal takes precedence over all others except an accepted blasting signal.

6. Bells—AIR ON OR OFF.

7. Bells—DANGER SIGNAL. Followed by station signal, calls cage to that station. This signal takes precedence over all others except an accepted blasting signal.

8. Bells—AIR ON OR OFF.

9. Bells—DANGER SIGNAL. Followed by station signal, calls cage to that station. This signal takes precedence over all others except an accepted blasting signal.

10. Bells—AIR ON OR OFF.

11. Bells—DANGER SIGNAL. Followed by station signal, calls cage to that station. This signal takes precedence over all others except an accepted blasting signal.

12. Bells—AIR ON OR OFF.

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14. Bells—AIR ON OR OFF.

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43. Bells—DANGER SIGNAL. Followed by station signal, calls cage to that station. This signal takes precedence over all others except an accepted blasting signal.

they are kept in good condition.

Explosives

1. In view of the fact that so many accidents occur in the use of explosives, no person shall be permitted to handle the same without proper knowledge or instructions.

2. No explosives shall be used unless there shall be plainly printed or marked, in the English language, on every original package containing such explosives, the name and place of business of the manufacturer of such explosives, together with the date of its manufacture.

3. When explosives are delivered near the shaft of the mine, a representative of the Company must receive the same and see that they are safely placed.

4. Detonators shall not be stored with explosives.

5. Detonators shall not be transported in the same vehicle or carried in the same case with dynamite or other explosives.

6. In tamping drill holes wooden ramblers only shall be used. Tamping by strokes is forbidden and only direct application of pressure permitted.

7. No iron or steel tools shall be used for tamping.

8. No explosive shall be taken into any mine except in a securely covered case.

9. Miners about to fire shots shall cause warnings to be given in every direction, and all entrances to the place or places where charges are to be fired shall be guarded while such firing is going on.

10. The number of shots exploding, except in case of electric firing, shall be counted by the miner firing same.

11. If said miner be not certain that all the shots have exploded, no one shall be permitted to enter the places where such charges were placed, for a period of thirty minutes after the fuses are lighted.

12. It is strongly recommended that miners do not extract or attempt to extract explosives from a hole which has been fired, but in every such case insert a fresh charge above the misfired explosive and then detonate same; and that miners do not descend holes or any part of holes left standing or abandoned and therefore charged with explosives. If for any reason a hole is missed and the miners consider it necessary to remove the charge, the same shall be done with a picket, scraper and swab stick only, and a drill or other metal tool shall not be used in attempting such removal, but men are warned that there is danger in the practice of removing charges under any circumstances and are requested not to do so.

13. Skewers are furnished for the use of all miners handling explosives, and no other instrument must be used for inserting the detonator.

14. Cap crimpers must be used in all cases.

15. When crimping detonators the greatest care must be taken not to squeeze the explosive composition, and they must never be crimped with the teeth for there is enough composition in one of these small capsules to blow a man's head off.

UNDERGROUND MEN

Special Rules

1. Only miners are permitted to handle powder and other explosives in the mines. Blasting supplies shall be taken out of the powder house only in quantities sufficient for one round of blasting at any one time. All unused powder or other explosive must be promptly returned to the powder house.

2. All employees